



2014-REDLINE
NATIONWIDE
MINE RESCUE
SKILLS
COMPETITION
RULES

2014 NATIONWIDE MINE RESCUE SKILLS COMPETITION RULES

These rules are developed to provide competition to Mine Rescue Teams in all aspects of Mine Rescue Skills Training.

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General Rules

General Rules

1. Teams must have a minimum of six members.
2. Judging will be based on overall time, discounts or a combination of the two. Time will be converted to discounts with one minute of time equal to one discount.
3. The discounts of all skills competitions will be added to determine winners.
4. There will be no isolation, and teams will work out of their equipment conveyance which will have a designated parking location. Facilities will not be available to clean apparatus.
5. Competitions conducted at different locations may have local rules only for facility limitations.
6. The first aid competition skill will be performed by the #2, #3, #4 and #5 team members, if the problem requires CPR and none of the above mentioned members are certified, it will be a 5 point discount. The #1 team member (captain) and the #6 team (briefing officer) cannot perform first aid during the competition. Team members #1, #2, #3, #4, #5 and #6 will take the written test.
7. When a team reports to any block of the competition, the team must notify the judges which 6 team members will compete. During the “Support Skills Competition” (first aid, gas detector, breathing apparatus, air measurements and written test), at the fresh air base two team members will be drawn for breathing apparatus, two for air measurements and two for gas detector from the six team members designated to the judges.
8. Team Trainers will be responsible for their team to be at designated locations with proper equipment during all competitions.
9. Teams will compete in nine competitions, one field exercise, one smoke maze exercise, two firefighting exercises, first aid, gas detector, breathing apparatus, air measurements and a written test. Competitions may be combined. If a team fails to complete any portion of any competition, except smoke, they will receive the highest time and number of discounts, for that competition, recorded for the event.
10. Teams will be given a copy of the mine rescue problem or problems at registration that they will have to work during the field competition. Different fields may have different problems.
11. Team uniforms:
 - Teams do not have to have matching uniforms with numbers for the competitions.
 - Shorts cannot be worn.
 - Metatarsal boots or a hard toe boot with a minimum height of 8 inches are required.
 - Standard mine cap lights must be used.

12. The fire fighting clothing standards for firefighting are:

- Outer clothing will be one piece or two piece with long sleeves, a 6 oz Minimum weight and FR (fire retardant) rating.
- FR rated hoods.
- FR rated gloves.
- Teams will not receive bonus minutes if they do not have fire fighting clothing for the fire fighting exercises.

13. The smoke exercise will have one or more mines. Mines will have the same items, but the items may be in different locations. Items may be relocated as competition progresses.

14. The Briefing Officer Map and Team Map will be judged in the smoke exercises. The maps will be compared to a key map.

15. **Qualifying for the Nationwide Mine Rescue Skills Championship**

- a. Top finishing 30% from each Regional Qualifier, not to exceed 10 teams from any one regional qualifying event.
- b. Plus the highest finishing team that is state sponsored or trained, or is part of a Mine Rescue Association.

Above are minimums, **Championship** participation may be expanded by the Nationwide Planning and Rules Committee.

16. **2014 Nationwide Mine Rescue Skills Championship will be held October 6-10, 2014 at the MTTC Ruff Creek, Pennsylvania facility.**

17. Sites that host the Nationwide Championship must have adequate facilities to conduct all “blocks” of the competition

18. Once a team is locked in to the Nationwide Championship by competing in a regional Mine Rescue Skills Contest that team may **still** compete in other regional contests.



Mine Rescue Exploration and Ventilation Skills

Mine Rescue Exploration and Ventilation Skills-Highlights of Exceptions from the 2014 National Mine Rescue Rules

1. No attendants or alternates will be available or allowed to handle a team's life line.
2. There will be no isolation (lock up) of teams.
3. There will be no first aid in Mine Rescue Exploration and Ventilation Skills Competition.
4. There will be no statement of fact test. Teams may take a written test in the Support Skills Competition.
5. Teams using wireless radios will be given a frequency when they arrive at the Fresh Air Base.
6. The six foot tolerance does not apply to the team map. However all objects or conditions must be shown in the entries, crosscuts, intersections and openings they are located in.
7. The Briefing Officers map may be done on a tough book or laptop computer. The map will then be printed out and used for scoring. Teams will be notified at registration of the facilities choice of mapping.
8. If teams are required by problem design to go through water less than knee deep, patient, spare apparatus and gas detectors must be kept above the water level.

Discounts:

Failure to keep a stretcher patient, detectors or spare apparatus out of water.
5 point discount

Teams receiving assistance in handling a life line.
15 point discount

Teams life line damaging the field.
15 point discount

This dock covers teams that damage or displace field bolts or ribbon that established blocks and entries due to mishandling their life line.

Scoring:

A team's discount will be according to the 2014 National Mine Rescue Rules then converted to minutes for scoring (1 discount equal 1 minute).

If there is no time limit on the field problem, overtime discounts will be assessed as per the 2014 National Mine Rescue Rules.



Smoke Exploration Skills

Smoke Exploration Skills

1. Each team will be given a map that has the parameters of exploration marked on the map. Each team will be given 2 blank maps, a team map and a FAB map. Both must be immediately turned in at the end of the problem and both will be judged for items found and the accuracy of located items on each map. Teams will not be able to compare maps at the end of the exercise; they must be turned in as soon as the team arrives back at the fresh air base.
2. Each team **must** explore an area of the mine or entry **for not less than 20 minutes** and not to exceed 30 minutes. When the 30 minutes expire, the exercise will be over. **The working time of the team will be added to the total discounts-1 discount equal 1 minute.**
3. With the exception of the Fresh Air Base airlock curtains, teams will not be required to travel past the partitions or curtains installed into the crosscuts. Teams will be required to travel through open crosscuts.
4. There will be a combination of physical items or placards with information or numbers or letters that teams must locate while working the exercise. We will have less than 30 items to locate. The items or placards may be found on the floor, ribs, roof, or other items in the area of exploration. Teams may be asked to perform duties in the problem such as, but not limited to, crawling, building cribs, extinguishing fires, or rescue a person. Any request of the team to perform work will have the necessary equipment in the problem design for the teams to carry out the request. All teams should report to the mine with knee pads.
5. When locating items on the map, they must be located in the general area where found and not moved to another location. General area is defined as this: If an object or placard is on the right rib between break 1 and break 2 anywhere along the right rib in this location will be acceptable. Showing it on the opposite rib or another area will be discounted. The established legend of the **2014 National Mine Rescue Rules** must be used for marking the map.
6. Upon completion of the problem, if there are any questions concerning location of object or any team discount, they will be discussed with the team immediately prior to leaving the field, upon request of the team.
7. All team members must be mechanically linked to a life line that is in compliance with National Contest Guidelines. The only time that teams will not have to be mechanically attached to the life line is in a clear air designated area.
8. Communications on wire will be allowed for this exercise. Radios will not be allowed.
9. A team will consist of 5 working members and a briefing officer.
10. Teams/Team Members, who at the discretion of the judges are believed to have prior knowledge of the exercise, will be disqualified immediately and will not be allowed to complete the problem.

Discounts

1. Any team member not mechanically attached to the lifeline while in smoke.

2 Discounts

2. Failure to locate objects/placards indicating conditions of the mine or problem intent.
 - a. 2 discounts each object/placard team map
 - b. 2 discounts each object/placard briefing officer map

All objects used in the mine will be objects that are commonly found or seen in a coal mine.

3. Not following proper procedures while going under oxygen. (National Mine Rescue Rules)

10 Discounts each occurrence

4. Failure to have the face piece sealed other than at the fresh air base.

10 Discounts each occurrence

5. Failure to systematically explore the mine intersection by intersection, including crosscuts prior to moving inby to the next intersection. All crosscut openings or open crosscuts must be explored prior to moving inby.

5 Discounts each occurrence

6. Failure to return immediately to the fresh air base in the event of a breathing apparatus failure. Teams may either substitute an apparatus when returning to the fresh air base for the defective apparatus or complete the problem with the remaining team members.
10 Discounts for every minute the team delays returning to the Fresh Air Base.

8. Failure to follow written instructions of the problem design.

15 Discounts each occurrence



Fire Fighting Skills

Fire Fighting Skills

Fire Fighting will consist of two competitions: **Lance or Equivalent and Hose Management**

Lance Installation – Teaches the team to work together to install a lance to cut off inby progression of the fire and advance on the fire from outby to surround and extinguish the fire.

Hose Management – Teaches the team to work together to control the pressurized hose and direct the water to the desired location.

Contests may use other competitions but the lance installation and hose management will be conducted in the Nationwide Championship.

General Rules

1. A Mine Rescue Team will consist of 6 persons.
2. Full Mine Rescue Apparatus, cap lights etc. will be required to be worn in both exercises, **teams will don as per 2014 National Mine Rescue Rules.**
3. The Y connector, all fire hose, nozzles and other equipment will be provided for the teams.
4. The Mine Rescue Team will be required to wear their Mine Rescue Apparatus, cap lights and other normal gear, as if fighting an actual fire.
5. A minimum requirement of 6 oz. Heat Resistant Clothing, Heat Resistant Hood and Heat Rated Gloves will be required to receive the 5 minute bonus. Clothing must properly fit all six team members.
6. Team members must never be in between a charged fire hose and the coal rib.

2 discounts each occurrence
7. Teams must bring an extra apparatus with them to both the lance and the hose management exercises. **(failure to bring an extra apparatus 2 discounts)** If an apparatus failure is experienced by a team member while working either exercise, that team member must change out to the extra apparatus using proper procedures. The clock will continue to run during this change out. If the team experiences another apparatus failure, the hoses will be disconnected from the face piece and the team will continue to work the problem with a 2 minute discount for the 2nd failure.

8. One firefighting block will be an exercise in extinguishing a mock or live fire that will be in two parts:

A. Installation of a lance in by a fire to prevent the fire from spreading.

- 3 persons will be used to install the lance.
- 3 persons will be used to man the hose that will push the heat and smoke back to protect the lance crew until the lance is installed and everyone retreats with the protection of the hose crew.

B. Two 3-person hose crews will advance on the fire from out by using a fog pattern to push back heat and smoke and extinguish the fire.

9. The second fire fighting block will be an exercise in fire hose management:

A. The 6 person team will be separated into two 3 person teams.

- The first 3 person team will have to move an object through a course of different directions with the water pressure of the hose, the full length of the concrete pad.
- The second 3 person team will have to move the object back in the opposite direction through the same pattern to the original starting point.

10. Fire Hose Hook-Up Procedures: The 2½-inch fire hose will be pre-charged and connected to the Y connector which will serve as the team fire hydrant. The hose and Y connector will be secured to prevent accidental water pressure release and sudden hose movement.

1. Flush the Y connector, prior to connecting the fire hose.
2. Roll out the hose joints (hand-tighten).
3. Flush the hose before connecting the nozzle.
4. Install the nozzle.

Discounts (Infractions of the rules will cause time to be added to the total working time of the team).

Lance Installation

The following is a list of the infractions for hose connection to a fire hydrant:

1. Failure to flush the Y connector, prior to connecting the fire hose___2
2. Fire hose connections should be hand tightened. Wrench tightening any 1 ½” fire hose Connections___2 each connection
3. Failure to flush the hose before connecting the nozzle and lance___2

4. Failure to roll each section of hose into a tight street roll by hand, put the hose, wrench, nozzles and lance back where they were originally. (2 per item not returned) (2 per loose street roll)

(These infractions apply to both exercises found in the Fire Fighting Block while hooking up hoses to the Y connector.)

5. Failure of the 3 lance protection members to keep the heat and smoke pushed ahead of the 3 lance installation team members. **All 3 lance installation team members must break the plane of the mine. At least 2 team members must install the lance. No additional help from the hose crew will be allowed___2**

This would be added if the hose nozzle is not kept ahead of the lance installation members to prevent roll back of heat and smoke.

6. When the lance is installed the two 3 person teams will each become a hose team to advance on the fire from outby. The area just outby the fire will be marked with ribbon. The team must advance the fire hose nozzle to the ribbon or the fire will be considered still burning___10
7. As the team enters the building for the lance installation and to extinguish the fire from the outby side of the fire, the team must announce that they have completed a roof exam and gas test have been completed___2 per exam per entry
(This is required to remind the team of the importance of these two exams in this immediate area)
8. Running___2
Running is defined as a member having both feet off of the ground at the same time while moving.
9. Any team member turning their back to the fire while fighting the fire or retreating from the fire. **Turning your back to the fire area will be defined as if the outby judge can see the team member's face piece___5**
10. Any team member not having hold of the fire hose when in smoke___5 discounts maximum
11. **Any team member between the pressurized hose and the rib___2**
12. **Failure to bring an extra apparatus___2**
13. **For Fire fighting skills the total working time will be added to total team discounts- 1 discount equal 1 minute.**

FIRE HOSE MANAGEMENT

Procedures, Rules and Infractions:

The Hose Management Exercise is conducted on a concrete pad that is separated into two parts by a mid line with the first half marked with a Z-type pattern and the second half being an open pad with a set of goal posts at the end. The exercise requires the teams to move a box around cones through the Z pattern past mid line and then through the goal posts with water pressure from a fire hose.

This will be a timed exercise and infractions of the rules will generate discounts which will result in time being added to the Working Time to determine the Overall Exercise Time. Each discount point will result in one minute being added to the Working Time to determine the Overall Exercise Time.

The 6 person Mine Rescue team will be separated into two 3 person teams:

- The first 3 person team will move the box with water pressure around cones during the Z pattern shoot until they reach the mid line of the pad, and then move the box with water pressure down the rest of the pad through the goal posts during the goal post shoot.
- The second 3 person team will move the box back in the opposite direction through the Z pattern and then thru the goal posts located at the original starting point.

Each team will have their own team fire hydrant which will be a Y connector attached to the end of a 2½" fire hose. Adequate fire hose, nozzles and other necessary equipment will be provided for the teams. Two rolls of 2½" fire hose are connected to the main fire hydrant to make up the team fire hydrants used in this Hose Management Exercise. The first team's fire hydrant (Y connector) is attached to the end of the right side 2½" fire hose.

The second team's fire hydrant (Y connector) is attached to the 2½" fire hose rolled out to near the mid line of the concrete pad.

The Y connector with two 1½" outlets for connecting 1½" fire hose will be attached to the end of each 2½" fire hose and used as the team fire hydrant.

The 2½" hose will be pre-charged, and the hose and Y connector will be secured to prevent accidental water pressure release and sudden hose movement. Hand tighten all 1½" fire hose connections to team fire hydrant (Y connector), when connecting fire hose to fire hose and when connecting nozzle to fire hose.

Fire Hose Hook-Up Procedures are as follows:

1. Flush the team fire hydrant (Y connectors) before connecting any fire hose.
2. Roll out fire hose joints (hand-tighten).
3. Flush the fire hose before attaching the nozzle.
4. Install the nozzle (hand-tighten).

The general rules and procedures are as follows:

1. Full Mine Rescue Apparatus, cap lights, etc. will be required to be worn for this exercise.
2. The Captain of the Mine Rescue Team will tell the judges when to start the clock. All team members must have their hard hats on when the clock is started.
3. Team members will go under oxygen once the clock starts and complete normal team and apparatus checks.
4. All six team members can assist with the initial tests and hose set up. Once these are completed, the second 3 person team must leave the starting area before the first 3 person team turns on the nozzle to begin moving the box through the Z pattern shoot.
5. The first 3 person team must move the box around the proper side of the cones during the Z pattern shoot and break the plane of the mid line using water pressure from the hose. Team members are not allowed to step on the concrete pad while moving the box during the Z pattern shoot.
6. Once the box breaks the mid line plane, all 3 team members can be on the concrete pad behind the yellow mid line while the box is moved with water pressure across the second half of the concrete pad and breaks the plane between the goal posts during the goal post shoot.
7. Once the box crosses the goal posts, all 6 team members can assist in setting up the fire hose system for the second 3 person team to use. The first 3 person team must leave the starting area for the second team before the second 3 person team turns on the nozzle to begin moving the box during the Z pattern shoot.
8. The second 3 person team must move the box around the proper side of the cones during the Z pattern shoot and break the plane of the mid line using water pressure from the hose. Team members are not allowed to step on the concrete pad while moving the box during the Z pattern shoot.
9. Once the box breaks the mid line plane, all 3 team members can be on the concrete pad behind the yellow mid line while the box is moved with water pressure across the second half of the concrete pad and breaks the plane between the goal posts during the goal post shoot.
10. Once the box crosses the goal posts, all 6 team members can assist in breaking down and re-rolling the fire hoses into a street roll.
11. All fire hoses and nozzles must be returned to their original starting location to complete the hose management exercise. When the Captain is satisfied these items are complete, he will tell the judges to stop the clock.
12. The total time to complete the exercise described above will be the Working Time.
13. The yellow mid line extends past the edges of the concrete pad in imaginary form so team members cannot cross this extended imaginary line while on the grass adjacent to the concrete pad.

Discounts

Following are Discount Items with the number at the end indicating the discount for each infraction.

1. Failure to flush the Y connector prior to connecting the fire hose___2
2. Failure to flush the fire hose before attaching the nozzle___2
3. Fire hose and nozzle connections should be hand tight. Wrench tightening any fire hose or nozzle connection___2
4. Any team member stepping on the pad while moving the box around the cones during the Z pattern shoot___2
5. Any box that crosses the wrong side of a cone during the Z pattern shoot and is not returned to the right side of the cone before proceeding to the next cone___2
6. Any team member stepping on or crossing the yellow mid line while the box is being moved during the goal post shoot___2
7. If the box is moved off the pad by water pressure during the Z pattern shoot, it must be put back on the pad by use of water pressure. Moving the box back onto the pad by any other means will constitute a discount___10
8. If any member of the 3 person team determines the box is hung up or not spray able while on the concrete pad during the Z pattern shoot, that person must notify the judges, and the judges will return the box to the cone nearest the yellow mid line without a discount-but the clock will continue to run. (No discount)
9. If the box is moved off the pad adjacent to the goal posts by water pressure during the goal post shoot, it will be returned by the judges to the cone nearest the yellow mid line without a discount-but the clock will continue to run. (No discount)
10. If any member of the 3 person team determines the box is hung up or not spray able while on the concrete pad during the goal post shoot, that person must notify the judges, and the judges will return the box to the cone nearest the yellow mid line without a discount-but the clock will continue to run. (No discount)
11. Failure to street roll each hose in a tight roll by hand or not returning the hose to where it was originally found. Street roll is with male end rolled in the middle___2 per roll
12. Failure to return each nozzle to where it was originally found___2 per nozzle
13. RUNNING will not be tolerated. The edges of the concrete pad are grass and can be very slippery when wet. Safety is of utmost concern during this exercise, so RUNNING will be penalized___2 Running will be defined as a person having both feet off of the ground at the same time.

14. Failure to bring an extra apparatus___2

NOTE #1: The fire hose and nozzle for the second 3 person team may be placed at their team fire hydrant located near the mid line during the initial hose set up, but cannot be unrolled or connected until the first team moves their box through the goal posts.

NOTE #2: The second team can move the fire hose and nozzle used by the first team to their team fire hydrant, and use the same fire hose and nozzle for their exercise. However, the nozzle and open end of the hose must be controlled (cannot touch or drag on the ground) when being moved from the first hydrant to the second hydrant location. Should the team not control the fire hose or nozzle, they must reflush the hose before using. Failure to reflush the fire hose will result in the appropriate discount as listed above.

The Hose Management exercise is not complete until all hoses are re-rolled by hand into a street roll and the fire hose rolls and nozzles are returned to their original location. A 1½” fire hose is correctly rolled into a Street Roll with the male end rolled in the center.



Support Skills

First Aid

First Aid Skills

The first aid reference manual is MSHA's First Aid Manual SM 3.

As a Team is exploring, working or firefighting at or inby the fresh air base, a need for first aid treatment may occur. Treatment may be needed for injuries to team members, rescued persons that are being transported, or injuries that a rescued person has when the team finds him.

The first aid treatment inby the fresh air base addresses life threatening injuries or injuries that could become life threatening during transport to the fresh air base. Non life threatening injuries will be treated by the team after immediate transport to the fresh air base.

Teams will work the first aid problem on a field similar to the Mine Rescue field problem. After starting the clock teams will don apparatus and check equipment as required in the **2014 National Mine Rescue Rules**. Teams will explore the mine until they find the patient and then perform the first aid required. Teams will transport the patient to the fresh air base and complete first aid treatment if necessary and take the written test. The clock can then be stopped.

The first aid materials for a mine rescue team to use inby the fresh air base are:

(The list below is a minimum; a team can make use of additional first aid equipment)

- 1 barrier device with one way valve for AV (when barefaced)
- 1 CarEvent or other approved mine rescue apparatus
- 1 tourniquet
- 24 triangular bandages
- 2 pair of protective gloves
- 1 burn sheet
- 1 arm splint
- 1 leg splint
- 1 packet sugar/tube of instant glucose(for diabetic purposes)
- 1 long back board
- (Cravat bandages or straps cannot be preassembled on the back board)**
- 4 four inch compresses
- 1 cervical collar
- 1 Disposable Blanket
- 1 Full size first aid blanket (can be used for head roll)

Wheeled Stretchers can be used to carry supplies: However, patients cannot be transported on wheeled stretcher to FAB. Patient must be transported using a back-board, basket stretcher, stokes, etc. "Patient must be secured and carried to the FAB."

1. Tail Captain does not have to remain stationary. He can move to assist in treatment of injuries.
2. Patient assessment will be as required by the Nationwide First Aid skill sheet, not the **2014 National Mine Rescue Rules**.
3. With the exception of 1, and 2, the **2014 National Mine Rescue Rules** will be adhered to, **scoring (1 discount equal 1 minute).**

The following skill sheets represent the required procedures for each patient rescued and discounts that can be assessed.

SCENE SIZE-UP

STEP	ACTION	DISCOUNT
Location of injured person	Observe the area to ensure team and patient safety	1 Captain verbalizes
Team protection	Don protective gloves	1 Responder/s Don
Mechanism of Injury	If possible determine what forces caused the injury or evidence of a medical problem.	1 Responder/s verbalize
Communication	Notify the fresh air base of injuries location	1 Tail Captain notifies Briefing Officer

INITIAL ASSESSMENT

STEP	ACTION	DISCOUNT
Stabilization of Spine	During the assessment avoid unnecessary movement or rough handling of patient	1 Responder/s
Form a general impression	Look at and listen to the patient	1 Responder/s
Assess mental status	Determine if patient is alert and responsive or nonresponsive	1 Responder/s
Assess airway	Unconscious Patient: Ensure airway is open by feeling air from nose or mouth or failure of chest or abdomen to rise and fall or skin is blue or gray Conscious Patient: Verbalize that airway has been assessed Note: If patient is not breathing you must provide Artificial Ventilation	1 Responder/s
Assess circulation	Unconscious Patient: Check carotid pulse Conscious Patient: Verbalize circulation has been assessed Note: If no pulse perform CPR	1 Responder/s
Check for Bleeding	Visual examination of patient Note: Treat serious bleeding if found	1 Responder/s

HEAD TO TOE ASSESSMENT

Once life threatening conditions are under control, do a head to toe for injuries that may become life threatening or cause a disability during transport.

STEP	ACTION	DISCOUNT
Assessments	Head	1 Responder/s
	Neck	1 Responder/s
	Chest	1 Responder/s
	Abdomen	1 Responder/s
	Pelvis	1 Responder/s
	Arms	1 Responder/s
	Legs	1 Responder/s
	Back Surfaces	1 Responder/s

REMOVAL OF AIRWAY OBSTRUCTION

Conscious Person

Conscious patients will grasp for breath, have violent fits of coughing, will not be able to talk or breathe and will quickly turn pale and then blue.

STEP	ACTION	DISCOUNT
Partial Obstruction (Air Exchange)	Encourage patient to cough.	1 Responder/s
No air Exchange	Stand behind the patient and place your arms around the patients waist	1 Responder/s
	Grasp fist in your other hand and position the thumb side of fist against middle of the abdomen	1 Responder/s
	Press fist into the abdomen with a quick upward thrust	1 Responder/s
	Repeat thrust until expelled or patient becomes unconscious	1 Responder/s

Unconscious Person

STEP	ACTION	DISCOUNT
All Obstructions	Position on back and straddle patients hips	1 Responder/s
	Place heel of one hand against middle of the abdomen with fingers pointing toward chest	1 Responder/s
	Press into abdominal area with a quick upward thrust	1 Responder/s
	Open mouth and grasp dislodged object	1 Responder/s
	Repeat thrust until the foreign body is expelled	1 Responder/s

ARTIFICIAL VENTILATION

If you determine that the patient is not breathing or breathing efforts are minimal, you must provide artificial ventilation by mouth-to-mask, or the Care Vent resuscitator immediately. {Failure to secure the Care Vent or the Care Vent Resuscitator to the stretcher will be discounted under **2014 National Mine Rescue Rules, Rule Number 50___2 discounts**}

Mouth-to-Mask

STEP	ACTION	DISCOUNT
Preparing Patient	Failure to provide AV when needed immediately	1 Responder/s
	Failure to position patient on their back if necessary. Must keep back and neck straight (Use log roll skill sheet)	1 Responder/s
	Proper position of barrier device	1 Responder/s
	Proper modified jaw-thrust maneuver	1 Responder/s
Ventilation	Take a deep breath and exhale two times into the one-way valve.	1 Responder/s
	Ventilations will be delivered 10 to 12 times per minute	1 Responder/s
	Watch for chest to rise.	1 Responder/s
Evaluation	Observe for passive exhalation	1 Responder/s
	If not breathing reposition head and repeat ventilations	1 Responder/s

CARE VENT

General	Failure to secure Care-Vent during transportation	1 Responder/s
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Manual ventilation and cardiac compressions

STEP	ACTION	DISCOUNT
Preparing Patient	Allow the device to cycle once and then apply the full face mask or attach the Care Vent DRA to the patient's full face mask. A tilt action is used to hyper-extend the neck and move the jaw forward. This helps displace the tongue away from the back of the throat and maintain an open airway.	1 Responder/s
	If the patient's chest does not rise or the gas escapes around the mask or the pressure relief system operator, reposition the patient's head and adjust your hand position to obtain an effective mask and an open airway.	1 Responder/s
	If mask indicates signs of vomit, remove immediately and clear the airway. Ensure the mask and valve is free from obstruction. Restart ventilation immediately after cleaning airway.	1 Responder/s
Ventilation	If manual ventilation is to be used, depress the manual button and observe the rise of the patient's chest. Release the button when the chest rise is adequate.	1 Responder/s
Evaluation	If no respiratory effort is observed, position yourself above the patient's head. Turn on the gas supply.	1 Responder/s
	Monitor the patient's skin, nail bed and lip color.	1 Responder/s

CARE VENT – Cont.

Automatic ventilation

STEP	ACTION	DISCOUNT
Preparing Patient	Allow the device to cycle once and then apply the full face mask or attach the Care Vent DRA to patient's full face mask. A tilt action is used to hyper extend the neck and move the jaw forward. This helps displace the tongue away from the back of the throat and maintains an open airway.	1 Responder/s
Ventilation	Continue ventilation at an appropriate rate until relieved or spontaneous breathing returns.	1 Responder/s
Evaluation	If no respiratory effort is observed, position yourself above the patient's head. Turn on the gas.	1 Responder/s

Actions to be taken if patient vomits during resuscitation.

STEP	ACTION	DISCOUNT
Preparing Patient	Allow the device to cycle once and then apply the full face mask or attach the Care Vent DRA to the patient's full face mask. A tilt action is used to hyper-extend the neck and move the jaw forward. This helps displace the tongue away from the back of the throat and maintain an open airway.	1 Responder/s
	If the patient's chest does not rise or the gas escapes around the mask or the pressure relief system operator, reposition the patient's head and adjust your hand position to obtain an effective mask and an open airway.	1 Responder/s
	If mask indicates signs of vomit, remove immediately and clear the airway. Ensure the mask and valve is free from obstruction. Restart ventilation immediately after cleaning airway.	1 Responder/s
Ventilation	If manual ventilation is to be used, depress the manual button and observe the rise of the patient's chest. Release the button when the chest rise is adequate.	1 Responder/s
Evaluation	If no respiratory effort is observed, position yourself above the patient's head. Turn on the gas supply. Monitor the patient's skin, nail bed and lip color.	1 Responder/s

SERIOUS BLEEDING

External

STEP	ACTION	DISCOUNT
Direct Pressure	Cover wound with a clean cloth or your gloved hand and apply direct pressure on the wound	1 Responder/s
Elevation	If wound is on an arm or leg and there is no fracture, elevate extremity above heart level as you apply pressure.	1 Responder/s
Digital pressure	Place fingers on the appropriate pressure point between the heart and the wound.	1 Responder/s
Tourniquets	Apply between the wound and the heart as close to the wound as possible but never over a joint. Tighten till bleeding is controlled. Do not loosen. Make note of time applied. Mark T or TK on forehead.	1 Responder/s

Internal

STEP	ACTION	DISCOUNT
Examination	Check symptoms: Pale, cool and clammy skin, profuse sweating, rapid shallow breathing, weak and rapid pulse, dull eyes, enlarged pupils, possible thirst, nausea , vomiting and pain in the affected area.	1 Responder/s
Treatment for Shock	Use the Shock skill sheet	5 Responder/s
Transport	Transport to fresh air base as soon as possible	1 Mine Rescue Team

BURNS

STEP	ACTION	DISCOUNT
Airway	Maintain an open Airway	1 Responder/s
Burn Site	Keep site clean and keep the patient warm	1 Responder/s
Separate Sites	Any burned areas that might come in contact with each other when bandaging	1 Responder/s
Dressings	Apply moist dressings to first and second degree burns. Dry dressings to third degree burns	1 Responder/s
Applications	Do not apply ointment, sprays, butter or ice to burned areas	1 Responder/s
Blisters	Do not break blisters	1 Responder/s

SHOCK

Shock may accompany any serious injury: blood loss, breathing impairment, heart failure, burns etc. Shock can kill; treat as soon as possible. Symptoms are shallow breathing, rapid and weak pulse, nausea, collapse, vomiting, shivering, pale, moist skin, mental confusion drooping eyelids and dilated pupils.

STEP	ACTION	DISCOUNT
Airway	Establish and maintain an open airway	1 Responder/s
Bleeding	Control bleeding as defined in the Serious Bleeding skill sheet	1 Responder/s
Patient Position	Keep patient lying down	1 Responder/s
	Elevate foot of stretcher except for head and chest injuries, heart attack, and stroke.	1 Responder/s
Transport	Place blankets under and over patient, except for victims with spinal injuries, then only a cover blanket is necessary	1 Responder/s

WOUNDS

STEP	ACTION	DISCOUNT
Embedded objects	Do not remove embedded objects	1 Responder/s
	Stabilize embedded objects	1 Responder/s
	If object is too large to transport, cut off only enough to allow for transportation	1 Responder/s
Bandaging	Tie bandage compresses over open wounds, except for compound fractures	1 Responder/s
	Cover all compresses and dressings with outer bandage, except dressing for wounds of the eyes, nose, chin, one finger and one toe or compound fractures of the hand and foot when splinted	1 Responder/s

SUCKING CHEST WOUND

If air is being sucked into the lungs through a wound in the chest.

STEP	ACTION	DISCOUNT
Cover	Cover wound with airtight material-taped on 3 sides after the patient has exhaled. Chest wound bandage with flutter valve can be used.	1 Responder/s
Position patient	Place the patient on the injured side to allow expansion room for the uninjured lung if there is no spinal injury	1 Responder/s
Transport	Transport to fresh air base as soon as possible	1 Mine Rescue Team

MUSCULOSKELETAL INJURY

STEP	ACTION	DISCOUNT
Immobilize suspected fracture	One person to immobilize the limb and one to apply splint	1 Responder/s
Splints	Check that splints are long enough to support joints above and below suspected fracture	1 Responder/s
	Splints must be rigid enough to support suspected fracture	1 Responder/s
	Pad splints	1 Responder/s
Splint in position found	Do not attempt to straighten any painful, swollen, deformed extremity.	1 Responder/s

SKULL OR SPINAL FRACTURE

STEP	ACTION	DISCOUNT
Traction	Stabilize the head until patient is secured to your backboard	1 Responder/s
	Apply cervical collar.	1 Responder/s
Airway	Use modified jaw thrust	1 Responder/s
Position patient on backboard	Use four man log roll skill sheet	8 Responder/s
Transport	Secure patient to backboard (Minimum 5 straps or 15 cravats must be used to secure patient to back-board)	1 Responder/s
	Use blanket roll, padding, rolled up coats, etc. to stabilize the head and neck	1 Responder/s
	The patient must have his head, arms, pelvic area, upper legs and both legs below the knees secured to the stretcher. Straps or cravats must be used. (See figure 18 page 37 MSHA SM3 First Aid Manual)	5 Responder/s
	Cover with a blanket	1 Responder/s
	Treat for shock (use shock skill sheet)	
	Note: Patient MUST be secured to back board to prevent movement during transport. If patient is allowed to move/slide/etc. on back board during transport discount for endangering patient.	15 Responder/s
	<i>Example: If during transport the backboard is tilted and the patient slides on back board.</i>	
	Transport to fresh air base	1 Responder/s

FOUR MAN LOG ROLL

STEP	ACTION	DISCOUNT
Prepare for the Roll	Stabilize the neck and head and open airway by modified jaw-thrust	1 Responder/s
	Place spine board parallel to the patient	1 Responder/s
	Position one person at the shoulder, one at waist and one at the knee	1 Responder/s
	Shoulder rescuer extends patient's arm over the head on the side the patient will be rolled	1 Responder/s
	Rescuers will place hands under patient's shoulder, upper arm, waist, buttocks, knees and mid-calf	1 Responder/s
Roll	Roll patient in unison on side toward the rescuers	1 Responder/s/
	Waist rescuer pulls spine board against patient	1 Responder/s
	On command roll patient as a unit onto board	1 Responder/s/

RIB FRACTURE

Ensure that the binding is not too tight as a fractured rib can puncture a lung. If a lung is punctured, frothy blood may come from the patient's mouth.

STEP	ACTION	DISCOUNT
Bandaging	Apply thick padding over injured ribs	1 Responder/s
	Apply two medium cravat bandages around the chest firmly enough to afford support centering the cravats on either side of the injury	1 Responder/s
	Tie the knots over a pad on the opposite side of the body	1 Responder/s
	Support the arm on the injured side in a sling	1 Responder/s
Treat for Shock	Follow the steps in the Shock skill sheet	5 Responder/s
Transport	Transport to the fresh air base	1 Mine Rescue Team



Support Skills Gas Detectors

Gas Detectors

1. **The team must provide:** Gas Detectors and Complete Calibration Kit for each detector.
 - Detectors will be High and Low range as required by MSHA.
 - Teams will have one High and one Low range, **or a single detector that reads high and low**, that they would use in Mine Rescue work.
2. A team will be represented by two team members.
3. Contestants will check the **instrument or** instruments as per **2014 National Mine Rescue Rules** or by procedures in their manufacturer's manual. Check lists and/or notes are allowable.
4. Contestants will perform calibration as per their manual.
5. Contestants will read gas on their detectors for the following gases.
 - Methane
 - Carbon Monoxide
 - Oxygen
6. Judges discounts: 1 point discount (1 minute of time) is assessed for each item that is performed improperly by each contestant.
 - Visual damage
 - Power detector up
 - Battery Test
 - Detector range of gases in % or PPM
 - Calibration gas setting (set span)
 - Alarm settings (describe how to set)
 - Zero unit and calibrate
 - Proper in-date cal gas and proper regulator
 - Test box readings within 10% accuracy
 - Reset peaks



Support Skills Air Measurements

Air Measurements (new for 2014 scoring is by time only)

Anemometer

1. The team will provide:
 - Anemometer (digital anemometer prohibited)
 - Measuring tape
 - Timing device
 - Pencil and paper
2. A team will be represented by two team members.
3. One team member will give a brief description of the device.
4. Upon completion of the description of the device, the 2nd team member will take a 1 minute air reading, turn off, read dials, correct by using manufacturer's table of corrections, take area measurements and report the velocity to the judge.
5. Both team members will calculate the cubic feet per minute and report that calculation to the judge.

Smoke Tube

1. The team will provide:
 - Smoke tubes and aspirator bulb
 - Measuring tape
 - Timing device
 - Pencil and paper
2. A team will be represented by two team members
3. The two team members will complete the following:
 - Measure off a distance (distance determined by "local rules")
 - One team member with smoke tubes will be stationed at the upwind point of the measured distance
 - Second team member will be stationed at the downwind point of the measured distance with a timing device
 - For this exercise, team member upwind will release 1 smoke cloud in each quarter point within the airway
 - Team member downwind will time each smoke cloud to the downwind point

- Both team members will determine:
 - Average area
 - Velocity
 - Calculate cubic feet per minute
 - Report findings to the judge

Magnehelic

1. The team will provide:

- Magnehelic
- Necessary port hoses and fittings

2. A team will be represented by two team members.

3. The two team members will complete the following:

- One team member will give a brief description of the device
- One team member will demonstrate how to zero the device
- The team will determine area, take a pressure reading from the intake or return side of a stopping on an exhaust or blowing fan ventilation system
- Report findings to the judge



Support Skills Breathing Apparatus

Breathing Apparatus

1. Two (2) members will be selected to perform work on the apparatus during the competition. The two- member team must work together to disassemble, reassemble, and test the apparatus.
2. There will be no planned defect (bugs) in the apparatus.
3. Once the clock is started the apparatus will be disassembled to the point that the apparatus can be cleaned and disinfected properly as outlined in the manufacturer's manual.
 - A. Disassembly sequence as outlined in the manufacturer's manual does not have to be followed.
 - B. Testing procedure and sequence must be followed per the manufacturer's manual.
 - C. Bonus time: If the disassembly, assembly and testing is done exactly by the manufacturer's manual (sequence and procedure), ONE MINUTE will be deducted from the working time.
 - D. As part of reassembly, chemical cartridges will be filled properly by team.
 - E. A fully charged O2 cylinder will be installed as part of the reassembly exercise.
 - F. The face piece will be anti-fogged and installed on the apparatus after testing is completed and before the clock is stopped.
 - G. It will be stated by a bench competitor that the apparatus has been cleaned and disinfected after the apparatus is dismantled. This must be stated before the apparatus is assembled and tested.
 - H. The team will test the face mask with their face mask tester.
4. If a mistake is made by the team with the apparatus during the competition, the team will be stopped and shown the correct procedure by the judge and manufacturer's representative. The team will then demonstrate the correct procedure and continue the exercise. No discounts will be assessed for the error, but the stopwatch will continue to run.
5. Competing teams will provide the following:
 - A. Two apparatuses that are part of team's useable apparatus.
 - B. The latest revision for manual of apparatus used:
 - C. Test kit
 - D. Tool kit
 - E. Tester
 - F. Spare fully charged O2 cylinder
 - G. Turn-around tag (for BioMarine)
 - H. Log sheet (for BioMarine)
 - I. Anti-fog solution
 - J. Leak detection fluid
 - K. Silicone lubricant (Dow-Corning 111 or equivalent)
 - L. Chemical for refill cartridges
 - M. Spare parts kit or spare apparatus for parts in the event the team damages a part while competing
 - N. Canister fill stand (for BG4)
 - O. Face mask tester



Support Skills Written Test

Written Test

1. The test will be taken by the 5 working members and Briefing Officer.
2. The test will be open book. Reference books from the team's station may be used.
3. The minimum reference books in a station will consist of:

MSHA First Aid SM 3
IG-7 (3028) Manual for Mine Rescue training – Coal (March 2008)
Mine Fires Prevention-Detection-Fighting, Don Mitchell 3rd edition
2014 National Mine Rescue Rules
IG- 7a (2013)
2014 Nationwide Mine Rescue Skills Rules

4. The exercise will consist of 10 questions.
5. There will be 5 discounts for each incorrect answer or no answer.
6. Reference books will not be provided; teams must have their own books.
7. Written tests may be changed as the competition progresses.
8. The use of electronic devices is prohibited.